COMMONWEALTH OF MASSACHUSETTS

DEPARTMENT OF TELECOMMUNICATIONS AND ENERGY

D.T.E. 03-121

PREFILED DIRECT TESTIMONY OF

THOMAS W. SMITH

OF EQUITY OFFICE PROPERTIES ("EOP")

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D.T.E. 03-121

Q. Please state your name, occupation and business address.

I am Thomas W. Smith. I am Vice President – Energy Operations for Equity Office Properties Trust. My business address is Two North Riverside Plaza, Suite 2100, Chicago, Illinois 60606.

Q. Please describe your qualifications.

A. I am the Vice President of Energy Operations for Equity Office Properties. One of my main responsibilities is managing OSEP, L.L.C., a business unit EOP created to design, engineer, construct, operate and maintain cogeneration systems within EOP's portfolio of properties.

Prior to joining EOP, I have served as President of Americas Power Partners, Managing Partner of Alternative Energy Consultants, VP of Project Development for Polsky Energy Corporation, VP of Sales and Marketing for US Turbine, National Sales Manager of International Power Technology and various positions within Westinghouse Electric Corporation. I have been involved with the power generation industry for over 22 years and hold a BS degree from Miami University in Oxford, Ohio.

Q. Please describe the nature of Equity Office Properties' business.

A. EOP is the largest owner and operator of commercial real estate in the country. Currently, EOP owns and operates 684 office buildings in 27 U.S.

markets, has over 2,400 employees and a market capitalization of over $25 billion.

Q. Does EOP have any properties in Boston?

A. EOP currently owns 54 commercial office buildings in Boston with almost 13,000,000 square feet of rentable space. EOP is actively looking to acquire and develop other properties in Boston to improve its presence in the commercial real estate market.

Q. What is EOP's position on combined heat and power ("CHP")?

A. EOP is committed to CHP. The company has identified six major U.S. markets that possess the appropriate conditions to pursue CHP. These markets include Chicago, Boston, New York, Los Angeles, San Diego and San Francisco. EOP selected markets with a sizeable commercial portfolio, where favorable financial conditions exist and economic incentives are available. The company is in the process of analyzing its buildings in each of these markets to identify potential candidates for CHP, and we expect to find 50 – 100 buildings that can benefit from the CHP strategy.

Q. What is the current status of EOP's CHP program?

A. EOP presently has three projects online, representing 3,000 kW, fifteen projects in active development, representing 9,030 kW and six projects in pre-development stages totaling 6,530 kW. To date, EOP has committed almost

$27,000,000 to the CHP effort and is pursuing almost $7,000,000 in state and city incentives for these projects.

Q. What is EOP's assessment of the Boston CHP market?

A. As previously indicated, EOP is committed to the Boston commercial real estate market and to CHP projects within our Boston portfolio. EOP has analyzed a number of projects in our Boston portfolio, and a CHP installation would make economic sense in many of our buildings. Based on the current situation relative to the interconnection and standby charges, we are holding off on pursuing these projects.

Q. How does EOP select one of its buildings for a CHP installation?

A. Many factors are examined when selecting a market for CHP as well as the appropriate building within that market. The following is a basic summary of criteria considered:

1. Economics – Appropriate economic conditions within the market must exist to warrant a capital investment. Typically, this means a cost margin between the delivered cost of electric and thermal energy (steam, hot water, chilled water, etc.) and the price of fuel, typically natural gas.
2. Energy Load – The building needs to possess enough electric and thermal energy load to implement a project. Typically, this represents about 300 kW or greater on an electric side, and the

building must be able to utilize the exhaust heat from the generator for usable thermal energy requirements.

3. Tenant Power – In many EOP buildings, tenants have expressed interest in pursuing emergency backup electricity in case of a power outage. In order for tenants to benefit from such a project, EOP is attempting to select buildings where a CHP plant can play a dual role of supplying cost-effective energy in normal conditions as well as backup power in emergency circumstances.
4. Site Conditions – The building must have adequate space to accommodate the CHP system and be able to interconnect with required utilities (electric, natural gas, steam, hot water, chilled water, cooling and exhaust).
5. Incentives – In order to help stimulate the market, develop economies of scale and mitigate perceived risks, EOP has also focused on markets that offer CHP incentives.
6. General CHP Environment – EOP believes CHP will be an asset to our tenants, stockholders and the general population within the markets because of its efficiency, improved emissions (compared to conventional plants) and electric grid support. Given this methodology, EOP is looking for markets in which governments and energy-related parties (i.e. utilities) are supporting CHP.

Q. How does EOP determine the size of CHP projects within a building?

A. EOP is in the CHP business for the long-term, so our main focus is efficiency. We analyze the building's electrical load and compare it to the thermal requirements. Based on the outcome of this analysis, we size the CHP system to have the best overall system efficiency. Typically our systems will handle 25 – 35% of the buildings electrical and thermal requirements.

Q. What is EOP's assessment of the CHP market in Boston?

A. In general, the CHP market in Boston seems favorable; the economics are attractive, the cost of delivered electric power and thermal energy (steam), as compared to our long-term outlook for natural gas (CHP fuel source), creates a savings opportunity to support the estimated capital investment. Some of the buildings within EOP[1]s Boston portfolio have the space and site conditions to support CHP. There are tenants interested in receiving backup power from CHP plants, if technically possible. The state and local government agencies are helping to promote CHP. There are also incentives available for installing efficient combined heat and power systems.

While it appears that there are standards for connection of smaller cogeneration facilities within radial systems, these interconnection standards most likely will not apply to most of the situations in which our facilities would interconnect, either to larger facility sizes and/or to network applications. Based upon our initial assessment, we would welcome further

efforts to standardize and facilitate interconnection arrangements in network situations and for larger sizes, such as in California and other states.

Have there been any changes with the local utilities that may make EOP rethink its initial position?

A. Yes; NSTAR has proposed so-called standby rates. After analyzing the proposed rates, we have concluded that if adopted, the proposed NSTAR rates will likely preclude EOP from installing CHP facilities within its Boston properties. Simply put, these proposed rates will reduce or eliminate much of the energy savings that we could hope to realize.

Q. What is your Opinion of NSTAR's standby rates?

A. There is no question that the NSTAR standby rates will raise the cost of obtaining standby service for customers seeking to install distributed generation. This rate increase will deter cost effective CHP and will send inappropriate price signals to customers. The rates are based on faulty and false assumptions, and are wholly unsupported by relevant cost and load data. The proposed rates are supported not by any actual experience but rather by broad generalizations and speculation about how CHP systems are designed and operated.

Q: What aspects of the proposed rates do you object to and why?

A: First, the NSTAR standby rates are largely based on a customer's "contracted demand," to be set at the "generating capability or expected output" of the customer's CHP system. This proposal constitutes a full demand ratchet. We oppose the use of contract demand and/or demand ratchets because they are very blunt rate design tools. In this case the proposed rates will discourage cost-effective CHP and lead to over-charging customers who could otherwise benefit from installing CHP. Moreover, demand ratchets discourage efficient management and conservation of energy because unlike a demand charge based on actual usage, if we know we are paying a fixed amount regardless of how or when we operate our equipment, we there are no price signals that can influence us to adjust behavior to actual market conditions.

Second, NSTAR alleges that they incur the same costs whether a customer installs CHP or not. If this were the case, then the rates should be the same. If we apply the NSTAR rates to some of our properties in the Boston market, we see the anomalous situation where we could pay a higher charge for distribution service for a building with CHP than we would pay for an identical building without CHP. We think it is absurd to charge a customer more while providing less. Simply put, rates should be the same until data supporting an alternate conclusion is available. We believe that an accurate

accounting of costs and benefits of CHP would result in standby customers paying less than comparatively situated all-requirements customers.

That having been said, we own and manage properties both with and without CHP systems installed. In our experience, the service characteristics of a building without CHP are often different from those of a building with CHP. The peak distribution system demands in our buildings without CHP are driven largely by weather and time of day. The peak distribution system demand of our buildings with CHP occur when our CHP systems are go down, which is largely a function of equipment failure or scheduled outage.

Moreover, many CHP operators, including EOP often design their systems with redundancy built in – e.g. serving an average 900 kW load requirement with 4X250 kW generators. Based on our understanding of NSTAR's proposed rates, if we have a system with 4X250 kW generators, we would face a "contract demand" charge on all 1000 kW. This is not reasonable or fair because it fails to take into account the reality of how we operate our systems. Through smart and efficient operations, we can manage the back-up requirements to be a fraction of the total nameplate capacity of the system, because the probability of losing all 4 generators at the same time is highly remote.

Equally important, one would expect a high degree in peak usage diversity among CHP systems in different locations because CHP systems by

their nature are not inter-dependent.

NSTAR rates ignore the benefits that CHP brings to the entire system. While they are running, our CHP systems will effectively increase the distribution system capacity and relieve congestion in constrained distribution areas. CHP can also act to reduce the wholesale price of electricity by subtracting from total system energy demand. CHP can be part of the solution to the challenges facing the electricity distribution system, but not if the rates for back-up, maintenance and supplemental distribution service are exclusionary, as we believe NSTAR's rates to be.

We think the design of appropriate standby rates for the distribution companies in Massachusetts is a complex endeavor that will require time to do the job properly. Standby rate design should include several important aspects, including but not limited to: (1) accurate understanding of which costs are properly attributable to a customer who utilizes CHP and separation of such costs into fixed and shared components; (2) an accurate body of data to support underlying factual assumptions, particularly those regarding treatment of standby customers as a discreet service class; (3) appropriate measurement and consideration of benefits conferred by CHP to the distribution system; and (4) consideration of how CHP standby rates fit into the overall rate structures of the distribution utilities.

Q. Do you have other concerns about the proposed rates.

A: Yes, we are concerned that many of the terms and conditions in the proposed rates are unreasonable and ill-conceived. Moreover, there are important terms and conditions that should be part of the proposed rates. For example, the "Availability" section of each of the proposed tariffs states that the customer must furnish, at its own expense, a "connection whereby the Company can meter the power supplied by the [customer's] Generation Units. All meters shall be owned, operated and maintained by the Company." This requirement is not acceptable. We would not allow NSTAR to have meters on our equipment and it is not appropriate for the Department to dictate such a result. We would expect NSTAR to provide a meter to measure the power that NSTAR delivers to the building. It is not appropriate for NSTAR to measure our energy "behind the fence."

Second, the tariffs require six month's written notice to cancel the service. This requirement could force us to pay fixed standby charges for six months after we disconnected our equipment. There is no basis for such a continuing charge. We also object to the requirement that we provide 36 months prior written notice to transfer to non-firm standby service. While we would never take non-firm or standby "interruptible" service from NSTAR on the terms proposed in their testimony, we nonetheless object to this unnecessary and unreasonable imposition of a waiting period.

As for terms that should be part of the standby rates, we think that well designed standby rates will reflect the different types of service that CHP customers require, and be priced to reasonably reflect the costs of the services provided. Operators of distributed generation like EOP require different types of distribution service, including back-up, supplemental and maintenance service and even interruptible service. These services have different characteristics and accordingly cause different costs on the distribution company. For example, by failing to provide any specific differentiated terms for maintenance service, we think we could be over-charged when we schedule outages in advance. Similarly, NSTAR includes no specific terms for non-firm standby service and states in their testimony that such service would be offered at the rates and on the terms offered to firm all- requirements customers. It seems incongruous to charge a standby customer taking non-firm service the same rates as charged to all-requirements customers taking firm service.

Finally, the terms of service should exclude from billing demand any demands that are a result of the action or cause of the distribution company. For example, if the distribution company seeks that we operate our CHP systems in order to assist in reducing system load at times of peak demand, we should not be assessed demand charges based on metered demands at such times. Similarly, if our equipment is forced off-line and our billing demand is

increased as a result of faults or other occurrences on NSTAR's system that we did not cause and would not otherwise have incurred, then we should not be assessed demand charges based on such events.

Q. Are you concerned about the market remaining in a state of uncertainty pending establishment of final rates for customers who install CHP.

A. Absolutely, while we would prefer uncertainty to the punitive and exclusionary rates proposed by NSTAR, we would urge the Department to establish a grandfather clause that maintains the applicability of current rates and then set a firm date for the imposition of any new standby rates that is sufficiently in the future so that parties who are planning CHP now can continue with certainty regarding the rates they will face. It is not sufficient to set a date that takes effect immediately upon adoption of the tariff, because parties can't plan in the interim while the rates are sorted out. Needless to say, a retroactive rate would be unfairly punitive.

Q. Have you formed any conclusions regarding the proposed NSTAR standby rates?

A. We have concluded that the standby rates proposed by NSTAR are seriously flawed in design, and will discourage others from pursuing cost effective CHP

projects in NSTAR's service territory. We think the proposed rates are anti-competitive and will send distorted market signals to the market. We think it is unfortunate but unavoidable that if these rates are adopted, then they will likely prevent our building occupants from enjoying the benefits of CHP. We urge the Department to reject the proposed rates and establish a process for the determination of appropriate rates.

Q. Does this conclude your testimony?

A. Yes.